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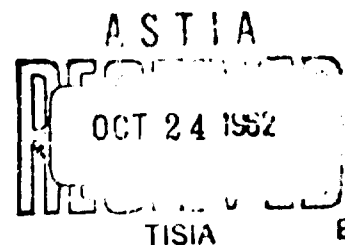
ANALYSIS OF ADJUSTMENT
DIMENSIONS IN SMALL

1 CONFINED GROUPS

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Analysis of Adjustment Dimensions in Small Confined Groups¹

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The small stations operated by the United States in Antarctica are manned each year by combined groups of U. S. Navy and civilian research personnel. The mission of the military group is that of maintaining the stations in operating condition, while that of the civilians is to collect scientific data in various disciplines. During the six summer months all station personnel must jointly prepare themselves and their station for the winter ahead. Once the six month winter sets in, the station personnel are confined to the interior limits of the station, are isolated from the outside world except for occasional radio communication, and each man assumes the responsibilities prescribed by his occupational specialty.

The present study is part of a program of research oriented towards a better understanding of personal adjustment to such an environment. If we can presume adequate adaptation to the climatic conditions, the personnel who winter-over at small Antarctic stations must cope with the two general problems of carrying out one's job as expected and getting along with others in a confined living group setting. The military and civilian

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organizations, to which these personnel are responsible for their work, are able to make general evaluations of personnel proficiency. But on the basis of their daily contacts with one another and their adequate familiarity with the goals of the expedition, the station personnel can readily make evaluations themselves, both in regard to work performance and social adjustment within the group. Since 1957, such evaluations have been made of small station personnel by both station leaders and peers.

A previous report (Gunderson and Nelson, 1962) summarized the relationships between overall adjustment estimates based upon averaged ratings by supervisors and peers during the wintering-over period; the stability of these global evaluations over time was also studied. In the present study attention is focused on the somewhat more specific rating dimensions on which evaluations were made and out of which the composite evaluations of the previous study were formed. Both the reliability and interrelationships of such dimensions are presently assessed. Since the techniques of evaluation varied over the years, a separate analysis is offered for each year. Within each year there was also variation in data collection schedules and completeness of data, so sample sizes vary.

Deep Freeze 1957

Four stations of Deep Freeze 1957 were studied. At the end of the winter period, several military and civilian supervisors from each station evaluated their personnel with a four-category rating of "overall

performance" and on each of seven specific behavior characteristics (Appendix A). Since any station member had only one supervisor to rate his effectiveness, there was no way to assess rater agreement. The only analysis made of the supervisor evaluations alone was that of comparing the average "overall performance" ratings for personnel described in different ways on the seven specific behavior characteristics. In this analysis personnel from all stations were pooled. The results appear in Table 1. Supervisors were particularly attentive to the capacity of an individual to understand and carry out instructions and orders, to be neat and clean, and to be able to work alone without requiring others for supervision. The absence of a significant relationship between performance and being a disciplinary problem may be due to an observed variation among supervisors' judgments as to what constituted a disciplinary problem.

At two of the four stations peer evaluations were also obtained at the end of winter. Each station member was rated by his peers on twenty behavior characteristics (Appendix B). Positive ratings, those judged as favorable to the ratee, were scored by the authors as "+1"; negative ratings were scored as "-1". These scores were then summed over the twenty characteristics to provide a single score for each ratee from each rater. While concealing the relationship which any one behavior characteristic might have had with "overall performance", this method provided the best differentiation of raters.

Table 1

Deep Freeze 1957 Leader Evaluations: Relationship of Specific Behavior Ratings to Ratings of Overall Performance Given by Station Leaders. Mean Differences Tested by Student t Test

Ratings of specific behavior	Overall Performance ^a			P
	N	Mean	S.D.	
Does not let others push him around; does not look for trouble	48	3.06	0.90	
Lets others take advantage of him; often argues or picks fights	11	2.73	0.86	
Has no difficulty learning or carrying out instructions	50	3.24	0.74	
Is slow to learn; unable to carry out simple instruction	13	2.15	0.77	<.01
Responds to orders with initiative or without comment	46	3.20	0.85	
Responds to orders poorly and with resentment	18	2.50	0.76	<.01
Stays to himself during free periods	17	3.24	0.81	
Is leader or part of group activity during free periods	47	2.91	0.90	
Is unusually neat and clean	11	3.64	0.64	
Is not unusually neat and clean	52	2.85	0.86	<.01
Has not been a disciplinary problem	54	3.07	0.88	
Has been a disciplinary problem	11	2.54	0.78	
Works better when working alone	37	3.22	0.78	
Works better when working with others; needs supervision	27	2.67	0.94	<.05

^aOverall performance ratings ranged from a value of "1" for poor to "4" for outstanding.

Estimates of peer rating reliability were obtained separately for the two stations. At one station, where every peer rated all other personnel, the raters were split into two groups by taking odd-even names from an alphabetical roster. Each ratee was then given an average peer rating score from each of these two rater groups. The correlation of these two scores yielded an estimate of split-half reliability ($r=.86$, $N=24$) significant at the .01 level of confidence. At the second station, where each station member was evaluated by one or more peers but never by the entire group, rating reliability was assessed by intraclass correlation using only those ratees who were evaluated by more than one peer. Agreement among raters was significant at the .05 level of confidence. The data are presented in Table 2. At both stations, then, there was significant agreement among peers in their evaluation of station personnel.

Table 2

Analysis of Peer Rating Reliability Assessed Through Intraclass Correlation				
Variance Source	Mean Square	df	F	R
Between ratees	219.35	18	2.142	.20
Residual	102.42	43		

The final analysis of the 1957 data was the comparison of peer with supervisor evaluations. The average peer rating scores were compared for personnel judged by supervisors as "outstanding" and "good" ($N=47$) against personnel judged by supervisors as "average" and "poor" ($N=18$). A

point-biserial correlation of .49 was obtained, significant at the .01 level of confidence. While peers and supervisors tended to agree in their evaluations of personnel, the magnitude of their agreement suggests a lack of complete communality in their rating frames-of-reference. If the supervisors attended to both job performance and social adaptation in making their overall judgments, the peer evaluations should correlate with the supervisors' evaluations increasingly well to the extent that peers also attend to both job and social concepts. Reference to the peer rating instrument used indicates that items pertaining to job performance were more prevalent than items pertaining to social adjustment.

Deep Freeze 1958

At each of three small stations in Deep Freeze 1958, station personnel were evaluated by two station leaders at the end of the summer period and again at the end of winter. At two of these stations, the senior military leader evaluated all personnel and was assisted, independently, by a junior-military officer in evaluating military personnel and by the civilian leader in evaluating civilian personnel. At the third station, the senior military leader and the civilian leader evaluated all personnel. Although ratings were made on each of nine dimensions (Appendix C), only the following were studied: adjustment to expedition life, ability to get along with others, ability to do his job, and overall opinion. These were dimensions on which the most complete data were obtained and represented the adjustment dimensions of interest in this study. Three analyses were performed with these data: assessment of rater agreement within time period, consistency of ratings over time, and relationship among the rating dimensions within time period.

Since the rating distributions of individual raters tended to be skewed, ratees were divided as close to the median as possible into upper and lower groups for each rater on each dimension. Contingency coefficients were then computed for each dimension comparing the upper and lower groups of the senior military leader with the upper and lower groups of either the junior military leader or the civilian leader as appropriate. The stations were pooled in this analysis. Table 3 contains the results describing agreement between leaders within each time period. The contingency coefficients reported throughout this paper are based upon 2X2 contingency tables and have been corrected for a maximum possible value of .707 for such tables. Also shown in Table 3 are the estimates of rating consistency over time. These data were obtained by correlating for each dimension the average leader ratings for end of summer with the average leader ratings for end of winter. The results indicate rater agreement within time period and consistency of average ratings over time.

Relationships among the rating dimensions were obtained by correlating averaged leader ratings across dimensions. These results appear in Table 4. Military and civilian ratees were treated separately in this analysis on the assumption that different aspects of performance may have been given different weight by the leaders in their evaluation of these two types of personnel. Although the difference is slight, job performance was somewhat more related than social adaptation to "overall opinion" for the military personnel, while the reverse was observed for civilians. If there is anything to this trend, it may be due to greater saliency and cruciality of

Table 3
Deep Freeze 1958 Leader Evaluations: Rater Agreement Within Time Period and Consistency of Average Ratings between Time Periods

Rating Dimension	Rater Agreement Within ^a				Consistency Between ^b			
	N	r _c	N	r _c	Summer	Winter	Summer and Winter	r _c
Adjustment/expedition life	71	.60	63	.67				.69
Gets along with others	72	.56	63	.74				.67
Does his job well	62	.43	63	.48				.60
Overall opinion	71	.32	63	.67				.93

^aContingency coefficients; for all values, $p \leq .05$

^bPearson product-moment correlations; a few rates evaluated by a single leader are included in this analysis; for all values, $p \leq .01$

Table 4

Deep Freeze 1958 Leader Evaluations: Intercorrelations of Rating Dimensions within each Time Period, Military and Civilian Rates Separate^a

Rates	Rating Dimension	Summer				Winter			
		(2)	(3)	(4)	(4)	(2)	(3)	(4)	(4)
Military	(1) Adjustment/expedition	.79	.55	.56		.83	.57	.74	
	(2) Gets along with others		.70	.66			.80	.69	
	(3) Does his job well			.73				.75	
	(4) Overall opinion				N=53				N=63
Civilian	(1) Adjustment/expedition	.63	.54	.74		.33	.60	.92	
	(2) Gets along with others		.54	.75			.62	.90	
	(3) Does his job well			.44				.78	
	(4) Overall opinion				N=30				N=17

^aPearson product-moment correlations; for all values, $p \leq .05$

the military jobs in regard to station life. In general, however, the significant intercorrelations suggest a single factor of adjustment composed of both task and social components. The dimension of "adjustment to expedition life" was consistently more highly related to social than job performance, and perhaps this dimension was perceived by the leaders as simply another way of expressing the ability to get along with others.

At the end of the summer and winter periods, peers at each of these stations evaluated one another through a peer nomination questionnaire (Appendix D). Three nominations were made for "remaining with me at the station" (Base) and three nominations were made for "going with me on an overland sled party" (Ice). Values of "3", "2", and "1" were assigned by the authors to first, second, and third choices respectively. A choice sum was then obtained for each station member for Base, Ice, and total nominations (Base plus Ice). Within each station, personnel were divided as close to the median as possible into upper and lower choice groups on each nomination index. Since there were generally more military than civilian personnel at these stations, and since there may have been a tendency for military to choose military and civilians to choose civilians, the upper and lower choice groups were formed separately for military and civilian personnel and then pooled.

Contingency coefficients were again used to assess the relationship between the nomination indices within and between time periods. These results are shown in Table 5. Base and Ice nominations were significantly related within each time period, but between time periods the total or composite nomination was most consistent.

Table 5

Deep Freeze 1958 Peer Evaluations: Contingency Coefficient Relationships between Peer Nomination Indices within and between Time Periods

Relationship	N	r_c	p
Summer Base with Summer Ice	93	.50	<.01
Winter Base with Winter Ice	69	.51	<.01
Summer Base with Winter Base	53	.24	
Summer Ice with Winter Ice	53	.44	<.05
Summer Total with Winter Total	53	.64	<.01

In Table 6 the relationship between peer and leader evaluations is shown. Point-biserial correlations were used to compare upper and lower peer nomination choice groups on averaged leader ratings. Base nominations

Table 6

Deep Freeze 1958 Peer and Leader Evaluations: Point-biserial Correlations between Peer Nomination Indices and Leader Evaluations.

Leader Evaluations	Peer Evaluations					
	Summer			Winter		
	Base	Ice	Total	Base	Ice	Total
Adjustment/expedition	.35 ^{***}	.17	.18	.21	.22	.17
Gets along with others	.36 ^{***}	.30 ^{**}	.31 ^{**}	.37 ^{**}	.27	.40 ^{**}
Does his job well	.24 [*]	.15	.26 [*]	.22	.03	.13
Overall opinion	.45 ^{***}	.22 [*]	.37 ^{***}	.26	.10	.15
N	84	84	84	50	50	50

* Significant at the .05 level of confidence

** Significant at the .01 level of confidence

were generally more highly related to each of the leader evaluations than were the Ice nominations made by peers. There was some indication that Ice nominations were related to occupation; that is, "it would be good to have a glaciologist along because of his specific knowledge and skills on the ice." Selections for Base at the end of summer were related to each

of the leader evaluation dimensions, while at the end of winter they were significantly related only to leader ratings of compatibility. The ability to get along with others, or compatibility, was the one leader dimension most consistently related to the peer nomination indices. The finding that leader ratings on compatibility increase over time in their relationship to the composite peer nomination, while leader ratings on job performance decrease over time in the same regard, suggests that peers attached increasing importance to social rather than work adjustment through the winter.

In summary, rating agreement between leaders was observed within each time period. Evaluations were also consistent over time, with "overall opinion" of leaders and the composite nomination by peers being most consistent. While both job performance and social adjustment were highly correlated with leaders' overall opinions at both time periods, social adjustment appeared somewhat more related than job performance to the peer evaluations, particularly at the end of winter.

Deep Freeze 1960-1961

In Deep Freeze 1960, data were collected from two stations. There were no peer evaluations. At the end of winter the military and civilian leader from each station rated every man on each of twenty-one behavior characteristics (Appendix E), and ranked all station personnel in the order in which they would select them to serve at an Antarctic station, assumed by the authors to be an overall evaluation. In Deep Freeze 1961 the two station leaders evaluated station personnel by the same method described above, but made evaluations at the end of summer, at mid-winter, and still again at the end of winter. Peer nominations were also obtained at each

of the above time periods. Data were so obtained from three small stations. In the present analysis, the two Deep Freeze years were pooled wherever there were common data.

The first analysis was that of assessing agreement between leaders on their overall ranking of personnel within each time period. In some instances, one station leader categorized his personnel rather than ranking them. At no station did both leaders do this at the same time period. Therefore, after transforming ranks to T scores, point-biserial correlations were computed in instances where one leader categorized personnel, and Pearson product-moment correlations were computed when both leaders gave ranks. For each station, then, a correlation was obtained between the two leaders on their overall evaluation at each time period. These correlations were averaged over stations to give an estimate of leader agreement within each time period. By a similar method, an estimate of the consistency of evaluations between end of summer and end of winter also was obtained. These results appear in Table 7.

Table 7

Deep Freeze 1960-1961 Leader Overall Evaluations:
Agreement between Leaders within Time Period and
Consistency of Evaluations over Time

Time Period	N	Avg. r	p
Summer	18	.22	
Mid-winter	18	.33	
End of winter	18	.43	<.10
Summer-End of winter	18	.34	

On the overall ranking, there was an increase in leader agreement over time, but in general the agreement was not so good as that observed between leaders in previous data. Perhaps the method of ranking required greater differentiation than the leaders were reliably able to make. It also is possible that experience as a supervisor may be important in personnel evaluation. In Deep Freeze 1958, station military leaders were Navy line officers experienced in rating their men. In the present years, the military leaders are Navy Medical Officers whose experience in the Navy and probably in evaluating personnel is limited. Nevertheless, there were in 1960 and 1961 differences between pairs of leaders in the extent to which they agreed, suggesting individual differences.

The peer evaluations obtained in 1961 consisted of three nominations for each of the following: most and least likeable, knows most and least about his job, adjusts best and poorest to the group, and would like or not like to be marooned with this person on the ice. Since two of the three stations offered incomplete data over the last two time periods, peer evaluations were pooled over stations and time periods for most of the following analyses. Consistency of peer evaluations was assessed, however, through a correlation of peer scores obtained at the end of summer with an average of the peer scores obtained in the two winter periods. Values of "+3", "+2", and "+1" were given by the authors for positive first, second, and third choices respectively; values of "-3", "-2", and "-1" were given for negative first, second, and third choices respectively. Choice scores were summed for each ratee, and on each nomination index personnel within each station were divided as close to

the median as possible into upper and lower choice groups. Military and civilian personnel were drawn from the same pool since they were approximately equal in number at these stations. Contingency coefficients were computed to estimate the relationship between the peer nomination indices. These are shown in Table 8.

Table 8

Deep Freeze 1961 Peer Evaluations: Relationships among Peer Nomination Indices and Test-retest Stability of Evaluations between End of Summer and End of Winter.^a

	(2)	(3)	(4)	Test-retest
(1) Likeability	.50	.63	.54	.46
(2) Knows job		.53	.58	.73
(3) Adjusts to group			.78	.45
(4) Would like to be with if marooned or lost				.53

^aContingency coefficients; for all values $p \leq .05$ ($N=58$).

The 1961 peer evaluation data suggest a general evaluative factor composed of both job and social adjustment components, very similar to the results obtained from the 1958 leader evaluation data. Consistency of evaluations over time is indicated, particularly with regard to job knowledge. Again, adjusting to the group, or compatibility, appears most highly related to the more general nomination dimension pertaining to being marooned or lost with a person.

For the Deep Freeze 1961 stations, peer evaluations were compared with leader evaluations. Pooling data over the three time periods, personnel at each station were divided into upper and lower groups based upon averaged leader rankings. Personnel had already been so divided on

the basis of peer nomination scores. Contingency coefficients were then used to assess the relationship between each peer nomination index and the overall leader evaluation. The results appear in Table 9. Peer evaluations of compatibility were more highly related to leaders' overall ranking evaluation than were any of the other peer nomination indices.

Table 9

Deep Freeze 1961 Peer and Leader Evaluations: Contingency Coefficients Estimating the Relationship between Peer Nomination Dimensions and Overall Evaluations by Leaders

Peer Nomination Dimensions	Overall Leader Evaluation		
	N	r _c	p
Likeability	36	.45	<.05
Knows job	36	.14	
Adjusts to group	36	.63	<.01
Would like to be with if marooned or lost	36	.38	<.10

In the 1958 stations, it appeared as though the station leaders included both job and social adjustment components in their "overall opinions", while the peers seemed to be somewhat more oriented towards social adjustment or compatibility. Data from the 1961 stations suggests that the reverse may be true. While the peers did attend highly to compatibility, they also included job knowledge in their general evaluation, assuming choice "to be marooned with" as the most general evaluation made by peers. On the other hand, the 1961 leaders gave overall evaluations based much more on compatibility than on job knowledge, as measured by the peer nominations. There may be a subtle difference between knowing about one's job, as measured in 1961, and in doing one's job well, as measured in 1958, but the two indices of job orientation should be positively correlated.

To better understand the frame-of-reference used by the 1960 and 1961 leaders in their overall ranking judgments, analysis of ratings on the twenty-one specific behavior characteristics was conducted. For each station leader, at each time period, the twenty-one behavior ratings were correlated with the overall ranking evaluation. Point-biserial correlations were obtained between average ratings on the behavior characteristics and dichotomous classifications on "overall evaluation". Although some differences were noted among leaders and time periods, a single estimate of each relationship was obtained by averaging the correlation values over leaders and time periods. Agreement between pairs of station leaders on their behavior ratings was also assessed by averaging inter-rater correlations over time and stations. Relationships also were obtained between average ratings on behavior characteristics and dichotomous classifications on peer nominations pertaining to "being marooned with on the ice." Point-biserial correlations were obtained for each station; average correlations were then computed. The results of these three analyses are shown in Table 10.

The magnitudes of relationship between the behavior ratings and the general leader and peer evaluations were reasonably similar. Dimensions pertaining specifically to job or work performance were more highly related to peer evaluations than to leader evaluations, supporting previously reported data for these groups. Both peers and leaders, however, attended to social adaptation in making their evaluations of personnel. Characteristics correlated at the .90 level of confidence or better with both peer and leader evaluations were "likeability" and "daily routine performance". The latter

Table 10

Deep Freeze 1960-1961 Peer and Leader Evaluations: Average Agreement between Leaders on Behavior Characteristic Ratings and the Average Relationship of such Behavior Ratings with 1) Overall Leader Evaluation and 2) General Dimension of Peer Evaluation.^a

Behavior Characteristic	Avg. Agreement Between Leaders	Overall Leader ^b Evaluation	General Peer ^c Evaluation
Adapts to change	.17	.44	.50*
Controls emotions	.54*	.50*	.42
Expresses anxiety	.45	-.36	-.35
Muscular tension	.28	-.42	-.38
Accepts authority	.61**	.46	.25
Excitability	.35	-.38	-.36
Maturity	.44	.46	.32
Self-confidence	.15	.18	.24
Motivation to do one's job	.30	.44	.59**
Likeability	.58*	.55*	.47*
Alertness	.31	.41	.41
Leadership	.43	.45	.31
Industriousness	.39	.42	.66**
Problem-sharing	.16	.11	.00
Agressiveness	.40	-.10	-.04
Happiness	.38	.42	.52*
Outward reaction to frustration	.40	.05	-.29
Motivation to belong to group	.30	.50*	.46
Attitude towards Deep Freeze	.28	.44	.69**
Satisfaction with assignment	.32	.46	.61**
Daily routine performance	.53*	.55*	.66**
N	18	18	18

^aPearson product-moment correlations used for leader agreement; point-biserial correlations used for relationships with leader and peer evaluations. For each station group included in these analyses, N=18. The correlations reported are averages based upon two or more groups.

^b"Order the men as you would choose them to serve with you at an Antarctic station".

^c"What men would you like (and not like) to be marooned or lost on the ice with?"

*Significant at the .05 level of confidence.

**Significant at the .01 level of confidence.

dimension probably approximates a general evaluation more than any of the other behavior dimensions, and it is encouraging to observe leader agreement on such a dimension, particularly when leader agreement was relatively low on the overall ranking.

Discussion and Conclusions

Personnel evaluations made by Deep Freeze small station leaders and peers appear reliable both within and between assessment time periods. Perhaps greatest variability in rating reliability lies in the evaluations rendered by station leaders. In 1958, the most general evaluation made by leaders was their "overall opinion" of station personnel; on this rating dimension, there was significant agreement between station leaders both within and between time periods. Presumably, the most general evaluation made by station leaders in 1960 and 1961 was a ranking of personnel "in the order in which you would want them with you at an Antarctic station." Leader agreement was much lower on this evaluative dimension. It has already been suggested that perhaps experience as a supervisor may be important as a determinant of reliable supervisor ratings, and the 1958 military leaders were probably more experienced in this sense than the military leaders in 1960 and 1961. For both time periods, the civilian leaders were probably similar in supervisor experience. In keeping with the idea that rater experience is important was the finding in both 1958 and 1960-1961 that agreement between leaders increased over time.

Aside from rater experience, the nature of the evaluation question must also be considered in terms of its potential effect upon rating reliability. What are the similarities and differences, for example, in the

frames-of-reference used by leaders in responding to a question about "overall opinion" as contrasted with a question about "desirability of being with at an Antarctic station"? Is the latter question subject to a more idiosyncratic frame-of-reference than the former question, and, hence, a potentially lower level of inter-rater reliability? As the questions asked of leaders become more similar in content, there is evidence that evaluations based upon such questions can be made more reliably. The leaders in 1960 and 1961, for example, reached significant levels of agreement when evaluating station personnel on "how well the group liked them" and "daily routine performance," in much the same way that the leaders in 1958 were able to reach significant levels of agreement on "how well does he get along with others in the group" and "how well does he do his job". It might simply be that peer nominations on general aspects of performance are a more reliable source of evaluation than leader ratings, particularly when one or both of two leaders are relatively inexperienced in serving as supervisors. In such instances, the leaders might in fact be considered as but two peers, and their agreement with one another should be expected to be no greater, and perhaps less, than that between other group members.

The extent to which leaders and peers have included both job and social adjustment components in their overall evaluations of station personnel has varied over the years. In 1958, station leaders included both job and social adjustment in their overall evaluations, while peers in that year attended somewhat more to social adjustment or compatibility than to job performance. In 1961, on the other hand, peers included both the job and social adjustment aspects of behavior, even favoring the former,

while the station leaders generally attended more to the social adjustment aspect of behavior. One hypothesis to account for this trend is that job performance is given greater emphasis as part of an overall evaluation as the number of years of work experience of the raters increases. Just as the 1958 military leaders were probably more experienced in the Navy than the 1960 and 1961 military leaders, military enlisted personnel of 1960 and 1961 stations tended to be older and had more time in service than those of the 1958 stations.

Results of the present study do suggest one very important notion about adjustment in small confined living groups such as those in the Antarctic. Compatibility, or fitting in with the group, is at least as important as job performance in the eyes of both leaders and peers. This finding suggests that doing one's job well may be a necessary but not sufficient quality for good overall adjustment in this environment. While there may be differences depending upon the occupation to which one refers, it might be that there is greater tolerance of less adequate job performance for persons who are personally well received by other group members than for persons not so well received. Since ratings of job performance and social adjustment are positively correlated in the results of this paper, the authors speculate that willingness to work is more critical than sheer proficiency of work. In any case, the fact that compatibility is so important poses a challenge for those who are charged with the responsibility of selecting and grouping personnel for small Antarctic stations. Consideration of individual personalities and group composition becomes an apparent need in the selection and assignment process.

Appendix A

1957 Supervisor Evaluation³

What is your overall evaluation of this man?

() poor () average () good () outstanding

1. In the company or group to which he is assigned:

- + He does not let others push him around, but does not look for trouble
- He lets others take advantage of him
- He is often arguing or picking fights

2. With regard to his ability to learn and use what he knows:

- + He has no difficulty learning or carrying out instructions
- He is slow in learning but eventually gets it
- He is unable to understand or carry out simple instructions
- He seems to understand instructions but can't carry them out

3. He responds to orders and instructions:

- + With initiative
- + Accepting without comment
- Obviously resents orders but responds adequately
- Poorly and with resentment

4. During free periods:

- + He stays off to himself
- He is a leader of group activity
- He is usually a part of the group

5. With regard to himself and his clothes:

- + He is unusually neat and clean
- He is up to par with his shipmates
- He is objectionably dirty and untidy

6. Has he been a disciplinary problem (explain):

- + No
- Yes

7. When faced with a task, he works better:

- + When he works alone
- When he works with one or more persons with no designated leader
- When he works with a group and needs supervision every step

³(+) signs before behavior characteristics indicate those descriptions selected in this study for differentiating upper and lower groups on overall performance.

Appendix B

1957 Peer Rating

- | Strongly
Disagree | Disagree | Undecided | Agree | Strongly
Agree |
|----------------------|----------|-----------|-------|-------------------|
|----------------------|----------|-----------|-------|-------------------|
1. This man shows confidence in himself.
 2. His appearance is good.
 3. He shows leadership in his field.
 4. He has the ability to stand up under pressure.
 5. He takes the initiative.
 6. He is a fine athlete and enjoys sports.
 7. He is well educated.
 8. This man has command presence.
 9. He has stamina and endurance.
 10. His actions show that he has familiarity with many things.
 11. He exhibits imagination in solving problems.
 12. This man thinks quickly and well in a crisis.
 13. He is the type of man who will carry through in any situation.
 14. He exhibits poise in most situations.
 15. He has personal pride in himself and his work.
 16. His decisions show sound judgment.
 17. He performs well before the group.
 18. He has experience in military line and uses this to advantage.
 19. He has good training and knows his duties and responsibilities.
 20. Men would follow him gladly.

Appendix C

195. Supervisor Evaluations

- (1) How well adjusted is this man to life on the expedition?
 not too well fair all right well very well exceptionally well
- (2) How well does he get along with others in the group?
 not too well fair all right well very well exceptionally well
- (3) How well does he know the necessary information about the work he is doing?
 not too well fair all right well very well exceptionally well
- (4) How well does he do his job?
 not too well fair all right well very well exceptionally well
- (5) How well would he do on a future expedition?
 not too well fair all right well very well exceptionally well
- (6) How willing is he to obey orders?
 willing with no more than sometimes slack has been disciplinary
 interest required in obeying problem
- (7) How much work does he do?
 lacking drive; somewhat deficient sufficient drive for high energy level;
 avoids work in drive adequate accomplishment seeks work
- (8) Does he hold the respect of his equals?
 others turn to him frequently consulted rarely consulted others avoid him
- (9) What is your overall opinion of this man?
 outstanding better than average satisfied with him below average

Items marked () indicate those selected for study in this report.

Appendix D

1958 Peer Nominations

1. If only three other men from your immediate group could be left with you to man this station, while all others had to leave on an important mission, which three men would you choose to stay with you?
2. If you could take three men from your immediate group to accompany you on an overland sled part which was to accomplish an important mission, which three men would you choose?

1. _____	2. _____
_____	_____
_____	_____

Appendix E

1960-1961 Supervisor Evaluations^{5,6}

1. How adaptable is he to changes and new situations?
2. How well does he control his emotions?
3. How anxious, worried, or upset does he generally appear?
4. How tense does this person usually appear?
5. How accepting is he of authority?
6. How excitable does he generally appear?
7. Considering his age, how mature does he seem to be?
8. How self-confident is this person?
9. How motivated is he in carrying through with assignments?
10. How well liked is this person by others in the group?
11. How alert is this person?
12. How much leadership ability does he display?
13. How energetic or industrious is this person?
14. To what extent does he attempt to share his problems with others?
15. How aggressive is this person?
16. How happy does this person generally seem to be?
17. How does he react to frustration, outwardly or inwardly?
18. How motivated is this person to be an efficient member of the group?
19. How favorable are his attitudes towards the Deep Freeze projects?
20. How satisfied is this person with his present assignment?
21. How favorable is this person's performance under routine conditions?

Rank the men at this station in the order in which you would choose them to serve with you at an Antarctic station.

⁵Response to Items 1-21 is given on a nine-point rating scale.

⁶Personal Adjustment Rating Booklet (Modified Deep Freeze) prepared by Benjamin B. Keybrew, Ph.D., U.S.N. Medical Research Laboratory, U.S.N. Submarine Base, New London, Conn.

Appendix F

1961 Peer Nominations

1. Name the three men in this group you find most likeable.

Name the three men in this group you find the least likeable.

2. Name the three men in this group you think know their jobs best.

Name the three men in this group you think know their jobs least.

3. Name the three men you think adjust best to the group.

Name the three men you think adjust most poorly to the group.

4. Name the three men you would choose first to be with if you were suddenly marooned or lost in the Antarctic.

Name the three men you would choose last to be with if you were suddenly marooned or lost in the Antarctic.

Reference

Gunderson, E. K. & Nelson, P. D. Adjustment Criteria in Antarctica.

U.S.N. Med. N.P. Res. Unit, San Diego, 1962, (Mar.). 62-1, 10 pp.